

III. REMARKS

In the Office Action, at Point 1, a listing of objections to the claim language is presented. The claims have been amended to overcome these objections.

Claims 1, 3-4 and 11 were rejected under 35 U.S.C. 103 as being unpatentable over Isberg (US 6,029,052) in view of Auvray (US 5,564,076) and Smith (US 5,796,772) for reasons set forth in the Action.

Claims 5, 6-7, 8, 9, and 10 were rejected under 35 U.S.C. 103 as being unpatentable over Isberg (US 6,029, 052) in view of Auvray (US 5,564,076) in combination with various ones of Smith (US 5,796,772), Rich (US 5,758,271), Auvray (US 5,953,641), Duong (US 5,511,235), Eklof (US 6,308,052), Heck (US 5,483,691), and Abbey (US 6,151,354) for reasons set forth in the Action.

Claims 2, 12, 16 and 20 were rejected under 35 U.S.C. 103 as being unpatentable over Auvray (US 5,564,076) in view of Razavi (RF Microelectronics, copyright 1998) and Auvray (US 5,953,641) for reasons set forth in the Action.

Claims 17, 18 and 19 were rejected under 35 U.S.C. 103 as being unpatentable over Auvray (US 5,564,076) in view of Razavi in combination with various ones of Auvray (US 5,953,641), Igarashi (US 5,926,749), and Smith for reasons set forth in the Action.

The following argument is presented to overcome the foregoing rejections and to show the presence of allowable subject matter in the claims as amended.

The independent claims 1, 2, 3 and 12 have been amended to emphasize the use of a program control in the practice of the present invention. Programmable control signals are employed to change the characteristics of various ones of the components, such as the gain of an amplifier or the pass band of a filter, by way of example. This avoids the use of the additional complexity associated with parallel hardware signal paths in the construction of communications systems intended to handle signals of various signal formats. Claims 4, 5 and 17 are canceled in view of the inclusion of their subject matter in the respective independent claims.

The following software-controlled features are employed in the practice of the preferred embodiment of the present invention, wherein reference designations correspond to the component identifications shown in present Fig. 2. The features are presented with respect to the receiver aspect of the invention and with respect to the transmitter aspect of the invention as follows:

With respect to the receiver aspect of the invention, in the reception filter 2, a software-controlled section signal FX1 selects a particular bandpass transfer function into use. In the reception low-noise amplifier 4, a software-controlled gain control signal GX1 set the gain. In the baseband low-pass filter 6, a software-controlled selection signal FX3 selects a particular cut-off frequency into use. In the baseband amplifier 7, a software-controlled gain control signal GX2 sets the gain. In the reception side frequency synthesizer 10, a software-controller frequency signal S1 selects the output frequency. In the foregoing reception features, all software-controlled selections

and settings are related to the communication system that is currently used.

With respect to the transmitter aspect of the invention, in the baseband low-pass filter 15, a software-controlled selection signal FX4 selects a particular cut-off frequency into use. In the controllable transmission amplifier 17, a software-controlled gain control signal GX3 sets the gain. In the transmission power amplifier 18, a software-controlled control signal BX adjusts, sets or selects some properties of the power amplifier; wherein it is noted that there is seldom any clear, common signal path through a power amplifier for all systems or frequency bands, but in each case at least some properties of the power amplifier are affected by the control signal BX. In the transmission filter 3, a software-controlled selection signal FX2 selects a particular band pass transfer function into use. In the transmission side frequency synthesizer 13, a software-controller frequency control signal S2 selects the output frequency. In the foregoing features, all software-controlled selections and settings are related to the communications system that is currently used.

With respect to the amendatory passages inserted into the claims, it is noted that, in general, the passages follow the format wherein a specific property, such as a gain or bandwidth, of a component, such as an amplifier or a filter, is established by application of a specific control signal to the component for designating the desired property. Support for this format of amendment in the various claims is found in the present specification in the paragraph bridging pages 8 and 9 in conjunction with the circuitry of present Fig. 2. Therein, there is a description as to how control signals come from a processing

unit such as a microprocessor for establishing the properties of the various components being controlled.

It is noted that, in rejection of the various claims, it was necessary for the examiner to rely on the teachings of two or more references in order to find descriptions of the various limitations found in the claims. For some of the claims, Isberg is the main reference with other ones of the references providing those details missing from Isberg while, for other ones of the claims, Auvray '076 serves as the main reference with other ones of the references providing those details missing from Auvray '076.

With respect to the various details, it appears that, in claim 1, the teaching, namely, that a gain of the amplifier is set with a program-controlled gain control signal in relation to the radio interface from which signals are received, is not disclosed in either Isberg, Auvray '076 or Smith. Also, in claim 2, it appears that the corresponding limitation on the transmitting amplifier is not disclosed in either of the Auvray references. The examiner relies on Razavi to provide a digital quadrature baseband signal of the rejection of claim 2. As is noted by the choice of references used in rejection of the various independent claims, the subject matter of claim 3 is similar to that of claim 1, and the subject matter of claim 12 is similar to that of claim 2. Therefore, it appears that some of the teachings, or limitations, of the independent claims are not disclosed in the cited art.

There is also a question as to whether one would be motivated to combine the references for the rejections under 35 U.S.C. 103. Auvray '076 concerns an apparatus that uses only the direct conversion principle for one frequency band, or radio interface

(to use the language in the present claims), and an additional IF (intermediate frequency) conversion for the other frequency band. Thus, when one considers the problems that arise from applying the direct conversion principle to two different frequency bands, these problems are not addressed in the receiver of Auvray '076. The basic systems described by Auvray '076 and Isberg are sufficiently different so as to be incompatible in terms of teachings relating to the receiver and the reception method.

In the teachings of Smith, the emphasis is on a making of the communication frequency band narrower or wider, depending on whether a narrowband system (such as TDMA) or a wideband system (such as CDMA) is to be employed. Solutions that affect the width of the frequency band, for example, in an adjustable band pass filter, are different than solutions that affect simply the location of the frequency band; this consideration makes Smith inherently incompatible with a reference such as Isberg.

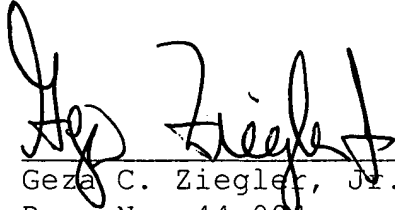
In view of the foregoing observations and argument as to the amended claims and the teachings of the cited art, it is believed that the claims now contain allowable subject matter.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of \$790.00 is enclosed for the Request for Continued Examination (RCE) fee. The Commissioner is hereby

authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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